OBITUARY — G. ALAN SOLEM

AN AUSTRALIAN PERSPECTIVE

By W.F. Ponder and *J. Stanisic*

One of the greatest malacologists the world has known, Alan Solem, died of a heart attack, on the 26th February, 1990, 58 years of age. He was, without question, the most productive malacologist in the last two decades, having published over 150 papers, books and monographs.

George Alan Solem was born on 21st July, 1931 in Chicago, Illinois. He obtained his Bachelor of Science degree at Haverford College, Pennsylvania in 1952, and Master of Arts (1954) and Doctor of Philosophy (1956) degrees at the University of Michigan under Dr Henry van der Schalie. His Ph.D. thesis was on the non-marine molluscs of the New Hebrides (as it was then). He was appointed Assistant Curator of Lower Invertebrates in the Field Museum of Natural History in 1957, and then promoted to Curator in 1959. He was made Curator of Invertebrates in 1971, a position he held to his death. At the time of his death he was Curator and Head of the Division of Invertebrates. He was made an honorary life member of the Malacological Society of Australia in 1987 (see Australian Shell News, 59-60 (Dec. 1987), p. 2) and was a member of many other professional societies. He is survived by his wife and two children, Andy and Kirsten, by a previous marriage.

Alan was not only well known and highly respected in malacological circles but the man and his work were widely known and appreciated by scientists in many other disciplines in Australia and elsewhere. The findings in his work have major implications for biogeography and evolutionary biology. He was always looking at situations and problems trying to see the "larger picture" — as well as applying his keen intellect to solving the problems of how species form, survive in desert conditions etc.

In the twelve months before his death he suffered some serious setbacks, not the least of which was having several grant proposals turned down by the National Science Foundation which, up to that time had been funding his work continuously for 14 years. Alan, however obtained private donations to keep his illustrator, Linnea Lahlum, working. Linnea had worked with Alan for more than 10 years. She is currently finishing illustrations for part V11 of his land snail studies with funding only expected to last a few weeks. Alan's monumental works on Australian land snails has had a profound impact on the way we think about our land snail fauna. His first trip to Australia was part of a four month tour including the Pacific Islands and New Zealand in 1961-62. He returned in 1965 on another tour but his first major involvement with Australian land snails commenced when he took his first real look at Western Australian land snails, nearly 10 years later, during a visit to Perth in 1974. He was so intrigued by the research possibilities that he successfully sought grant funding and returned in 1975 for field work and further study (see Australian Shell News, 17 (Jan. 1977), p. 5). He had eight major field trips to Australia over the last 14 years. During this time Alan studied, collected and monographed the camaenid land snails of the western two thirds of Australia, those of the Kimberley being of special significance. In addition his research grants funded collectors such as Laurie Price from New Zealand, Vince Kessner from the Northern Territory and Fred Aslin from South Australia to collect material for his projects. Representative collections of material, and types, resulting from Alan's projects have been deposited in the appropriate state museums.

His work not only encompassed the description of new taxa but endeavoured to answer questions regarding their biology, evolution and biogeography. Much of the taxonomic work was published in several large monographs but the synthetic results which all this was to provide a firm basis for, are largely unrealised. A major electrophoretic program was planned to test the taxonomy established and he also had planned to work on the biogeography and phylogeny of camaenids world wide, in part to try to establish the relationships of the Australian groups.

His last field trip to Australia was in May and June, 1989, collecting from Geraldton to Port Hedland. He also spent some time on the south coast collecting *Bothriembryon,* as this group was to be his next project after completing the camaenids. We quote from Alan's Christmas letter concerning this trip "Assistant Vickie Huff, a climbing fool with a high energy level, was a "natural" at spotting live snails, and happily encountering desert thorns, tent collapsing wind storms, mosquitoes, the famed Aussie flies, two floods, and some near freezing weather. Some 9,000 km of driving was required to get the material, which we then packed and tried to ship. Was that a lesson in frustration. Between the stupidity of the Australian and United States bureaucrats, it took nearly a month to get the specimens from Perth to San Diego (to Dave Woodruffs laboratory) — and there they sit, because Woodruff's lab has been shut down because of failed grant proposals!".

Field work with Alan was hardly a culinary delight — he ate nothing but tinned meat, salt biscuits and potatoes, hating anything vegetable. Despite this diet and his girth he managed surprisingly well in even very rough country, although he did slow down in some of his later trips, having acquired diabetes and a bad foot. Although he liked to see the snails in the field he did not enjoy camping and being outdoors — he regarded himself as a city person — the outdoor experience was a necessary evil to do the job well.

His works included a large number of publications which, either directly or indirectly, dealt with Australia's land snails. Alan's first major treatise, on the non-marine molluscs of the New Hebrides (Solem, 1959a), attempted to place the Australian snails into a global biogeographic context. A number of small papers on Australian taxa followed (Solem, 1959b, 1964a, 1973a). Further indications that his work was assuming an Australian emphasis came with the publication of "The Shellmakers" in 1974. This 'popular' introduction to the phylum Mollusca included many references to Australian species.

During the 1960s Alan produced two of his finest works on the non-marine molluscs. These were the two volumes on the endodontoid land snails of the Pacific Islands (Solem 1976, 1983b). Following in the footsteps of those revered American terrestrial malacologists, H.A. Pilsbry and H.B. Baker, he set new standards in molluscan systematics through his meticulous and comprehensive approach. The second volume of the set, which revised the Pacific Basin Charopidae, provided the basis for reviewing the large Australian charopid fauna and included descriptions and anatomical illustrations of several Australian species.

In spite of the excellent illustrations which formed the basis of the endodontoid study, Alan was regretful that the scanning electron microscope (SEM) only came to the fore as a research tool when this major project was coming to an end. Alan immediately realised the potential of the SEM as an aid to the description of shell surface features and radular characteristics, and in two short technical papers (Solem 1970a, 1972a) he established the SEM as an integral part of the malacologist's 'tool kit'. His subsequent publications on molluscan systematics bear testimony to his reliance on the SEM.

Alan's first major publication devoted entirely to Australian land snails reviewed a number of genera in the helicoidean family Camaenidae (Solem, 1979c). This was to herald the beginning of a 12 year publication sequence on the Australian Camaenidae (Solem 1981a, 1981b, 1984b, 1985b, 1988a, 1989b, in press A-C) which reviewed 356 species in 51 genera. Most of these taxa were new (234 species, 24 genera) and their description demonstrated the existence of an extensive arid zone land snail radiation in Australia. Alan was always one to make the most of an opportunity and numerous 'spin-off' papers also appeared. These included minor contributions to the systematics of the Charopidae (Solem, 1984a) and Helicarionidae (Solem, 1982a) as well as a larger paper on the pupilloid groups (Solem 1986a). In addition he expounded on some wider biological issues (Solem 1985a, 1988b; Solem and Christensen, 1984). Ironically, his last major paper on Australian Mollusca to appear at the time of writing was the review of the non-camaenid taxa of northern Australia (Solem 1989a). However, in retrospect, this publication, which placed numerous Australian taxa into a more universal context, completed a circle begun back in 1959.

Alan was particularly interested in the wider biological aspects of evolution and biogeography (Solem, 1969a; 1979a; 1979b; 1981c) and it is indeed unfortunate that his untimely passing has meant that the final synthesis of his studies on the Australian Camaenidae will remain unfinished. Nevertheless, numerous papers still in press and in various stages of preparation, which include studies on more arid zone Camaenidae, the Subulinidae, the south west Australian Charopidae and east Australian *Austrochloritis* s.l., together with several biogeographical studies, will ensure that Alan Solem's influence in Australian malacology is alive for some time yet.

We will sorely miss him — Alan was not just a colleague and a highly stimulating visitor but a valued friend.

BIBLIOGRAPHY OF WORK RELEVANT TO THE AUSTRALIAN REGION

1. Solem, A. 1953. Marine and fresh-water mollusks of the Solomon Islands. *Fieldiana, Zool.* 34(22): 213-227.
2. Solem, A. 1954. Living species of the pelecypod family Trapeziidae. *Proc. Malac. Soc. Lond.*, 31(2): 64-84, 4 figures, 3 plates.
3. Solem, A. 1957. Philippine Zoological Expedition 1946-1947. Philippine snails of the family Endodontidae. *Fieldiana, Zool.* 42(1): 1-2, 4 figures.
4. Solem, A. 1958a. New land snail from Queensland. *Nautilus,* 72(1): 20-22, pl. 3, fig. 1-6.
5. Solem, A. 1958b. Biogeography of the New Hebrides. *Nature,* Lond., 181: 1253-1255.
6. Solem, A. 1958c. Endodontidae Landschnecken von Indonesen und Neu Guinea. *Arch. Molluskenk.* 87(1-3): 19-26, 1 table.
7. Solem, A. 1958d. Marine mollusks from Bougainville and Florida, Solomon Islands. *Fieldiana, Zool.* 39(20): 213-226.
8. Solem, A. 1958e. Marines from Manus, Admiralty Islands. *Nautilus,* 72(2): 62-64.
9. Solem, A. 1959a. Systematics and zoogeography of the land and fresh-water molluscs of the New Hebrides. Fieldiana: Zool., 43: 1-359, pls. 1-34, 38 figs.
10. Solem, A. 1959b. On the family position of some Palau, New Guinea, and Queensland land snails. *Arch. Molluskenk.,* 88(4/6): 151-158, pls. 12-13, 2 figs.
11. Solem, A. 1959c. Marine Mollusca of the New Hebrides. *Pacif. Sci.,* 13: 253-268.
12. Solem, A. 1960a. Non-marine Mollusca from the Florida Islands, Solomon Islands. *J. Malac. Soc. Aust.,* 4: 39-56, 3 plates.
13. Solem, A. 1960b. New Caledonian non-marine snails collected by T.D.A. Cockerell in 1928. Not. Nat. Phila., No. 338: 1-9, 7 figures.
14. Solem, A. 1961a. New Caledonian land and freshwater snails. An annotated check list. *Fieldiana, Zool.,* 41(3): 413-501, 8 figures.
15. Solem, A. 1962. Notes on, and descriptions of, New Hebridean land snails. *Bull. Bt. Mus. Nat. Hist., Zool.,* 9(5): 217-247, 17 figures, 2 plates.
16. Solem, A. 1963. New Hebridean land molluscs collected by Felix Speiser from 1910-1912. *Verh. Naturf. Ges. Basel,* 74(2): 161-168, 2 figures.
17. Solem, A. 1964a. *Amimopina,* an Australian enid land snail. *Veliger,* 6(3), pp. 115-120, 4 figs.
18. Solem, A. 1964b. *Foxidonta,* a Solomon Island trochomorphid land snail. *Veliger,* 6(3): 120-123, 5 figures.
19. Solem, A. 1964c. New records of New Caledonian non-marine mollusks and an analysis of the introduced mollusks. *Pacif. Sci.,* 18(2): 130-137.
20. Solem, A. 1964d. A collection of non-marine mollusks from Sabah (formerly British North Borneo). *J. Sabah Soc.,* 2(1-2): 1-40, 5 plates.
21. Solem, A. 1965. Land snails of the genus *Amphidromus* from Thailand (Mollusca: Pulmonata: Camaenidae). *Proc. U.S. Natn. Mus.,* 117(3519): 615-628, 2 plates, 2 tables.
22. Solem, A. 1966. Some Non-marine mollusks from Thailand, with notes on classification of the Helicarionidae. *Spolia Zool. Mus. Haun.,* 24: 7-110, 24 figures, 3 plates.
23. Solem, A. 1968a. Endodontid land snails of Rapa Island: Patterns and problems in speciation. *Ann. Rept. 1967, Amer. Malac. Union,* pp. 33-34.
24. Solem, A. 1968b. *'Ptychodon' misoolensis* Adam & van Benthem Jutting, 1939, a New Guinea strobilopsid land snail and review of the genus *Enteroplax. Veliger,* 11(1): 24-30, 1 figure, 1 table, 1 map.
25. Solem, A. 1969a. Basic distribution of non-marine mollusks. *Mar. Biol. Assoc. India, Symp. on Mollusks,* Part 1, pp. 231-247, 10 figs.
26. Solem, A. 1969b. Abundance, local variation and brood pouch formation in *Libera fratercula* from Rarotonga, Cook Islands. *Ann. Rept. for 1968, Amer. Malac. Union,* pp. 10-12, 3 figures.
27. Solem, A. 1969c. Methods of subfamily recognition in Pacific island endodontid land snails. *Ann. Rept. 1969, Amer. Malac. Union,* pp. 37-39, 2 figures.
28. Solem, A. 1969d. Phylogenetic position of the Succineidae. In: *Proc. Third Malac. Congr., Malacologia,* 9(1): 289.
29. Solem, A. 1970a. Malacological applications of scanning electron microscopy, I. Introduction and shell surface features. *Veliger,* 12(4),pp. 394-400, pls. 58-60.
30. Solem, A. 1970b. The Endodontoid land snail genera *Pilsbrycharopa* and *Paryphantopsis. Veliger,* 12(3): 239-264, 3 figures, 6 tables.
31. Solem, A. 1972a. Malacological applications of scanning electron microscopy, II. Radular structure and functioning. *Veliger,* 14(4), pp. 327-336, 4 pls.

32. Solem, A. 1972b. *Tekoulina,* a new viviparous tornatellinid land snail from Rarotonga, Cook Islands. *Proc. Malac. Soc. Lond.,* 49(2): 93-114, 3 figures, 3 plates, 1 table.
33. Solem, A. 1973a. *Craterodiscus,* a camaenid land snail from Queensland. *J. Malac. Soc. Aust.,* 2(4), pp. 377-385, 6 pls., 1 fig.
34. Solem, A. 1973b. Apertural barriers in Pacific island land snails of the families Endodontidae and Charopidae. *Veliger,* 15(4): 300-306, 7 plates.
35. Solem, A. 1973c. A new genus and two new species of land snails from the Lau Archipelago of Fiji (Mollusca : Pulmonata : Endodontidae). *Veliger,* 16(1): 20-30, 6 figures, 3 plates.
36. Solem, A. 1973d. Island size and species diversity in Pacific Island land snails. *Proc. Fourth Europ. Malac. Cong., Malacologia,* 14: 397-400, 2 tables.
37. Solem, A. 1973e. Convergent evolution in pulmonate radulae. *Proc. Fourth Europ. Malac. Cong., Malacologia,* 14: 144-146, 2 figures.
38. Solem, A. 1974a. *The shell makers: Introducing mollusks.* New York, John Wiley & Sons, 289 pp.
39. Solem, A. 1974b. Patterns of radular tooth structure in carnivorous land snails. *Veliger,* 17(2): 81-88, 7 plates, 1 table.
40. Solem, A. 1975. Character weighing in land snail classification. *Bull. Amer. Malac. Union,* 1974: 47-50.
41. Solem, A. 1976. Endodontoid land snails from Pacific Islands (Mollusca: Pulmonata: Sigmurethra). Part I. Family Endodontidae. *Fieldiana, Zool. Special Publication.* pp. 1-508, 208 figs, 114 tables.
42. Solem, A. 1977. Fossil Endodontid land snails from Midway Atoll. *J. Paleont.,* 51(5): 902-911, 2 figures, 4 plates.
43. Solem, A. 1978a. Land snails from Mothe, Lakemba, and Karoni Islands, Lau Archipelago, Fiji. *Pacif. Sci.,* 32(1): 39-45
44. Solem, A. 1978b. Classification of the land Mollusca. In: *Pulmonates,* Vol. 2A, V. Fretter and J. Peake (Eds.), pp. 49-97, 2 figures, 4 tables, Academic Press, London and New York.
45. Solem, A. 1979a. Biogeographic significance of land snails, Palaeozoic to Recent. In Historical biogeography, plate tectonics, and the changing environment, *Proc. 37th Ann. Biol. Colloq. & Selected Papers,* J. Gray and Arthur J. Boucot, eds. Corvallis, Oregon State Univ. Press, pp. 277-287, 4 tables.
46. Solem, A. 1979b. A theory of land snail biogeographic patterns through time. In: *Pathways in Malacology,* 6th Europ. Malac. Congr., Amsterdam, 1977, S. van der Spoel, A.C. van Bruggen, and J. Lever, eds. Utrecht, Bohn, Scheltema & Holkema; The Hague, dr W. Junk b. v., Publishers, pp. 225-249, 6 tables, 4 figs.
47. Solem, A. 1979c. Camaenid land snails from Western and central Australia (Mollusca: Pulmonata: Camaenidae), I. Taxa with trans-Australian distributions. *Rec. West. Aust. Mus.* Suppl., 10: 1-142, 11 pls., 35 figs, 10 tables.
48. Solem, A. 1980. Abstract: Patterns of speciation in camaenid land snails of the Kimberley, Western Australia. (Symp. Biol. and Evol. Mollusca, Sydney). *J. Malac. Soc. Aust.,* 4(4): 236-237.
49. Solem, A. 1981a. Camaenid land snails from Western and central Australia (Mollusca: Pulmonata: Camaenidae), II. Taxa from the Kimberley, *Amplirhagada* Iredale, 1933. *Rec. West. Aust. Mus., Suppl.,* 11: 147-320, pls. 12-14, figs 36-73, tables 11-33.
50. Solem, A. 1981b. Camaenid land snails from Western and central Australia (Mollusca: Pulmonata: Camaenidae), III. Taxa from Ningbing Ranges and nearby areas. *Rec. West. Aust. Mus., Suppl.,* 11: 321-425, pls. 15-18, figs 74-110, tables 34-42.
51. Solem, A. 1981c. Land snail biogeography: A true snail's pace of change. In: *Vicariance Biogeography: A Critique,* G. Nelson and D.E. Rosen, eds. New York, Columbia Univ. Press, pp. 197-237, figs. 5.1-5.14.
52. Solem, A. 1981d. Small land snails from northern Australia. I. Species of *Gyliotrachela* Tomlin, 1930 (Mollusca: Pulmonata: Vertiginidae). *J. Malac. Soc. Aust.,* 5: 87-100, 19 figs, 2 tables.
53. Solem, A. 1982a. Small land snails from Northern Australia. II. Species of *Westracystis* Iredale, 1939 (Molluscs: Pulmonata: Helicarionidae). *J. Malac. Soc. Aust.,* 5: 175-193, 19 figs.
54. Solem, A. 1982b. Why New Zealand forests have so many land snail species. *Am. Philos. Soc., Yearbook for 1981,* pp. 46-47.
55. Solem, A. 1983a. First record of *Amphidromus* from Australia, with anatomical notes on several species (Mollusca: Pulmonata: Camaenidae). *Rec. Aust. Mus.,* 35: 153-166, 24 figs.

56. Solem, A., 1983b. Endodontoid land snails from Pacific Islands (Mollusca: Pulmonata: Sigmurethra) Part II. Families Punctidae and Charopidae, Zoogeography. Field Museum of Natural History, Chicago. 336 pp, 143 figs, 76 tables.
57. Solem, A. 1984a. Small land snails from Northern Australia. III. Species of Helicodiscidae and Charopidae. *J. Malac. Soc. Aust.*, 6: 155-179, 45 figs.
58. Solem, A., 1984b. Camaenid land snails from Western and central Australia (Mollusca: Pulmonata: Camaenidae), IV. Taxa from the Kimberley, *Westraltrachia* Iredale, 1933 and related genera. *Rec. West. Aust. Mus., Suppl.*, 17: 427-705, pls. 19-63, figs 111-180, tables 43-75.
59. Solem, A. 1984c. A world model of land snail diversity and abundance. In: *World-wide Snails: Biogeographical Studies on Non-marine Mollusca* (Eds. A. Solem & A.C. van Bruggen). Leiden: E.J. Brill. pp. 6-22, 2 tables.
60. Solem, A. 1985a. Simultaneous character convergence and divergence in Western Australian land snails. *Biol. J. Linn. Soc.*, 24: 143-163, 8 figs, 3 tables.
61. Solem, A. 1985b. Camaenid land snails from Western and central Australia (Mollusca: Pulmonata: Camaenidae), V. Remaining Kimberley taxa and addenda to the Kimberley. *Rec. West. Aust. Mus., Suppl.*, 20: 707-981, pls. 64-94, figs 181-256, tables 76-94.
62. Solem, A. 1986a. Pupilloid land snails from the south and mid-west coasts of Australia. *J. Malac. Soc. Aust.*, 7(3/4): 95-124, 36 text figs.
63. Solem, A. 1986b. Origin and diversification of pulmonate land snails, pp. 269-293. In: *The Mollusca,* vol. 10, E.R. Trueman (ed.), Academic Press, London.
64. Solem, A. 1988a. New camaenid land snails from the northeast Kimberley, Western Australia. *J. Malac. Soc. Aust.*, 9: 27-58, 3 tables, 34 text figures, 3 plates.
65. Solem, A. 1988b. Maximum in the minimum: Biogeography of land snails from the Ningbing Ranges and Jeremiah Hills, northeast Kimberley, Western Australia. *J. Malac. Soc. Aust.*, 9: 59-113, 10 tables, 25 text figs.
66. Solem, A. 1989a. Non-camaenid land snails of the Kimberley and Northern Territory, Australia. I. Systematics, affinities, and ranges. *Invert. Taxonomy,* 2(4): 455-604, figs 1-217, tables 1-2.
67. Solem, A. 1989b. *Cristilabrum kessneri,* a new camaenid land snail from the Jeremiah Hills, Western Australia. *J. Malac. Soc. Aust.*, 10: 97-107, 5 figs, 2 tables.
68. Solem, A. In press A. Camaenid land snails from southern and eastern South Australia, excluding Kangaroo Island. Part 1. Systematics, distribution, and variation. Part 2. Biogeography and covariation. *Rec. South Aust., Mus.*, 692 mss pp.
69. Solem, A. In press B. Camaenid land snails from Western and central Australia. Part VI. Red centre taxa. *Rec. West. Aust. Mus., Suppl.* 496 mss pp.
70. Solem, A. In press C. Camaenid land snails from Western and central Australia. Part VII, Dampierland to Nullabor taxa. *Rec. West. Aust. Mus., Suppl.*, 451 mss pp.
71. Solem, A. In press D. Native and introduced Australian subulinid land snails: Competition and coexistence. 9th International Malacological Congress, Edinburgh, 1986. 20 mss. pp., 20 text figues.
72. Solem, A. In press E. Limitation of equilibrium theory in relation to land snails. In: *International symposium on biogeographical aspects of insularity*. Academia Nazionale dei Lincei, Atti dei Convegni Lincei. 43 mss pp, 2 text figures, 7 tables.
73. Solem, A. In press F. Distribution and affinities of the terrestrial molluscs. In: Fauna of Australia, 5(Mollusca), Australian Biological Resources Study, Bureau of Flora and Fauna, 18 mss. pp., 3 text figs., 1 table.
74. Solem, A. In press G. How many Hawaiaan land snail species are left? — and what we can do for them. 34 mss pp., 2 tables. Hawaiian Invertebrate Survey Workshop, Honolulu, 1988. Bernice P. Bishop Museum.
75. Solem, A. and Laidlaw, F. 1961. The land snail genus *Amphidromus.* A synoptic catalogue. *Fieldiana: Zool.*, 41(4): 502-677, figures 15-40.
76. Solem, A. and Basch, P.F. 1973. Notes on a collection of non-marine Mollusca from Palau Aur, an Island off the east coast of Malaya. *Federation Museums Journal,* 16(1971): 91-95.
77. Solem, A. and Lebryk, S. 1976. Apertural microprojection size correlations in pupillid and polygyrid land snails. *Veliger,* 19(2): 115-120, 7 plates.
78. Solem, A., Climo, F.M. and Roscoe, D.J. 1981. Sympatric species diversity of New Zealand land snails. *New Zealand J. Zool.* 8: 453-485, 2 figures, 6 tables, appendices.
79. Solem, A., Girardi, E-L, Slack-Smith, S. and Kendrick, G.M. 1982. *Austroasiminea letha,* gen. nov., sp. nov., a rare and endangered prosobranch snail from south-Western Australia

(Mollusca : Prosobranchia : Assimineidae). *J. Roy. Soc. West. Aust.*, 65(4): 119-129, 13 figures, 2 tables.

80. Solem, A. and Christensen, C.C. 1984. Camaenid land snail reproductive cycle and growth patterns in semi-arid areas of northwestern Australia. *Austral. Jour. Zool.*, 32(4): 491-492, 2 figs, 5 tables.
81. Solem, A., Tillier, S. and Mordan, P.B. 1984. Pseudo-operculate pulmonate land snails from New Caledonia. *Veliger*, 27(2): 193-199, 5 figures.
82. Solem, A. and Climo, F.M. 1985. Structure and habitat correlations of sympatric New Zealand Land Snail Species. *Malacologia*, 26(1-2): 1-30, 9 figures.
83. Woodruff, D. S. and Solem, A. 1990. Allozyme variation in the Australian camaenid land snail *Cristilabrum primum:* A prolegomenon for a molecular phylogeny of an extraordinary radiation in an isolated habitat. *Veliger* 22(2): 129-139.

Acknowledgement

The authors are indebted to Vickie Huff, Margaret Baker and Linnea Lahlum, Division of Invertebrates, Field Museum of Natural History, for supplying essential background details which were used in this article.